

November 7, 2017

To the Standing Senate Committee on Energy, the Environment and Natural Resources and Senator Rosa Galvez

From the Royal Architectural Institute of Canada (RAIC)

Responses to follow-up questions about the National Building Code/National Energy Code

From Senator Galvez:

- i. In its present state, is the building code satisfactory?
- ii. Is this the building code that you want to have made mandatory?
- iii. Are there improvements that can be done? If so what are they?

RAIC: Strengthening the building codes is one of the best tools available because performance requirements make up the bulk of the actual code change. The outcomes include:

- Optimizing new technology or existing building systems for improved control and operational performance;
- Progressively higher standards to incorporate renewable energy;
- Use of low carbon fuel sources;
- addressing construction and energy codes for Northern and Indigenous communities.

Considerations for modifying the National Building Code and National Energy Code (the codes) to drive deeper emissions reductions in Canada:

- Mandatory requirements are critical to addressing basic components of energy efficiency design that are difficult to evaluate using energy modeling. Mandatory requirements are incorporated in other leading energy codes (ASHRAE 90.1, IECC).
- Canada should consider partnering more closely with ASHRAE in the development of the ASHRAE 90.1 Energy Standard for Buildings. This North American wide standard is currently the basis for energy codes in more than 40 US states and in multiple jurisdictions in Canada.
- The codes do not currently include requirements for renewable energy systems of any size. At minimum, the standard should require that building projects include explicit provisions for future installation of on-site renewable

energy systems. Beyond this, the standard could include for the provision of renewable energy systems to offset a portion of a building's energy use. This amount could increase over time as a graduated phase-in approach.

- Dramatic improvements to the availability and efficiency of LED lighting have rendered the requirements of the Lighting section of the standard outdated. This impacts the overall effectiveness of the standard as LED lighting can offset poor performing envelope and mechanical components.
- The codes currently evaluate energy performance instead of GHG emissions. This approach does not address the regional context and GHG intensity of energy grids in Canada and may, in some cases, incentivize building designs that increase GHG emissions.
- The energy code does not currently apply to renovations. Renovations represent a significant opportunity to improve energy performance in buildings; this limitation restricts the impact and penetration of the codes.
- The pace and breadth of the adoption of the expected revised targets across Canada represent a serious threat to the codes' effectiveness. The pace of adoption across the country is slow relative to the 2030 timeline, and adoption is uneven. Without national alignment, jurisdictions adopting the standard first run the risk of being perceived as less attractive for development. A lack of resources that support code authorities makes the adoption more time-consuming and risky those first out of the gate.
- Energy modeling is a critical tool for the implementation of revised codes. There is little standardization between the tools and approaches used by different energy modelers in the industry. Many local code authorities don't have the technical background to evaluate the results of code compliance energy models effectively.